Amendments to the Claims:

This listing of claims will replace all prior versions, and listings, of claims in the application:

1. (original) A method for controlling engagement and release of pressure-actuated torque establishing friction elements during a power-on upshift of a multiple-ratio transmission in a hybrid electric vehicle powertrain having an engine, an electric motor and a battery, the motor being disposed in a power flow path between the engine and a power input element of the transmission as driving power is delivered to a transmission power output member, and an electronic controller responsive to powertrain operating variables for controlling actuating pressure for the friction elements by releasing actuating pressure for an off-going friction element in synchronism with increasing actuating pressure for an oncoming friction element during a power-on upshift event, the method comprising the steps of:

increasing oncoming friction element actuating pressure at the beginning of the power-on upshift event;

reducing actuating pressure for the off-going friction element during a torque phase of the power-on upshift;

increasing electric motor torque during the torque phase; and

reducing electric motor torque during an inertia phase of a power-on upshift whereby torque variations in the transmission power output member are modulated.

2. (original) The method set forth in claim 1 wherein the step of increasing electric motor torque comprises obtaining a torque multiplier stored in controller memory during each control loop of the electronic controller; and

multiplying motor torque by the multiplier during the torque phase to increase effective motor torque during the torque phase.

3. (original) The method set forth in claim 1 wherein the step of reducing electric motor torque during the inertia phase comprises obtaining a torque multiplier stored in controller memory during each control loop of the electronic controller; and

multiplying motor torque during the inertia phase to decrease effective motor torque during the inertia phase.

4. (original) The method set forth in claim 2 wherein an effective torque in the transmission power output member at the end of the power-on upshift is the algebraic sum of motor torque and engine torque multiplied by instantaneous transmission speed ratio.

5. (original) The method set forth in claim 3 wherein an effective torque in the transmission power output member at the end of the power-on upshift is the algebraic sum of motor torque and engine torque multiplied by instantaneous transmission speed ratio.

6. (original) The method set forth in claim 1 including the steps of determining a time during a power-on upshift event when the oncoming friction element achieves torque establishing capability; and

controlling oncoming friction element pressure during the inertia phase using a commanded closed loop pressure.

7. (original) The method set forth in claim 6 including the step of detecting the end of the inertia phase; and

increasing the commanded pressure on the oncoming friction element to effect full oncoming clutch capacity at the end of a power-on upshift event.

8. (original) The method set forth in claim 7 wherein the step of increasing the commanded pressure on the oncoming friction element occurs as the oncoming clutch

becomes fully engaged following slipping of the oncoming clutch whereby an effect of a change in oncoming friction element dynamics is modified thus reducing torque fluctuation in the torque output member.

9. (original) The method set forth in claim 8 including a step of increasing the commanded pressure on the oncoming friction element prior to the torque phase followed by a return of the commanded pressure on the oncoming friction element to an initial pressure value at the start of a power-on upshift event.

10. (withdrawn) A method for controlling engagement and release of pressure actuated torque establishing friction elements during a coasting downshift of a multiple-ratio transmission in a hybrid electric vehicle powertrain having an engine, an electric motor and a battery, the motor being disposed in a power flow path between the engine and a power input element of the transmission as driving power is delivered to a transmission power output member, and an electronic controller responsive to powertrain operating variables for controlling actuating pressure for the friction elements by releasing actuating pressure for an off-going friction element in synchronism with increasing actuating pressure for an oncoming friction element during a coasting downshift event, the method comprising the steps of:

commanding a torque level for the motor before a start of the coasting downshift, the torque level command being based on a desired negative regenerative braking torque;

commanding an initial high pressure for a pressure actuator for the oncoming friction element to fill the actuator quickly;

commanding a pressure for a pressure actuator for the off-going friction element to a level that is a function of transmission input torque;

ramping down the pressure of the pressure actuator for the off-going friction element during a coasting downshift start mode prior to an inertia phase of the coasting downshift;

controlling pressure of the actuator for the oncoming friction element using closed loop control during the inertia phase; and

ramping up electric motor torque from a current negative regenerative torque level, the desired negative torque level being a calibrated level for each coasting downshift.

11. (withdrawn) The method set forth in claim 10 wherein the step of ramping electric motor torque includes the step of continuing the electric motor ramping during the coasting downshift until a time at which a desired transmission input torque is reached and clipping the electric motor torque at that value; and

detecting an end of the inertia mode when the coasting downshift is near completion.

12. (withdrawn) The method set forth in claim 10 wherein the step of commanding a high pressure of the pressure actuator for the oncoming friction element occurs prior to the inertia phase of the coasting downshift.

13. (withdrawn) The method set forth in claim 10 wherein the step of ramping down the pressure of the pressure actuator of the off-going friction element continues until slipping of the oncoming friction element is detected.

14. (withdrawn) The method set forth in claim 10 wherein the step of ramping down the pressure of the pressure actuator of the off-going friction element continues until torque capacity of the oncoming friction element is detected.

15. (withdrawn) The method set forth in claim 10 including the step of ramping down a commanded motor torque beginning at a time when a predetermined percentage of coasting downshift completion is detected.

16. (withdrawn) The method set forth in claim 15 wherein the ramping down of commanded motor torque occurs at a rate that is a function of percentage of coasting downshift completion.

17. (withdrawn) The method set forth in claim 10 wherein the commanded high pressure for the pressure actuator for the oncoming friction element occurs during a fill time that is pre-calibrated.

18. (withdrawn) The method set forth in claim 10 wherein the commanded pressure for the pressure actuator for the off-going friction element at the start of a coasting downshift is at a value that is sufficient to engage the off-going friction element with a capacity slightly in excess of the capacity of the off-going friction element.

19. (withdrawn) The method set forth in claim 10 including the step of increasing to a high level a command for pressure for the actuator for the oncoming friction element at the completion of the coasting downshift.

20. (withdrawn) The method set forth in claim 10 including the step of establishing a minimum pressure clip for the pressure for the actuator for the oncoming clutch during closed loop control in the inertia phase.

21. (withdrawn) The method set forth in claim 10 including the step of reducing to zero the pressure of the actuator for the off-going friction element at the beginning of a coasting downshift to increase its rate of response as the pressure of the actuator for the oncoming friction element is boosted instantaneously prior to closed loop control.

22. (withdrawn) A method for controlling engagement and release of pressure actuated torque establishing friction elements during a ratio change of a multiple-ratio transmission in a hybrid electric vehicle powertrain having an engine, an electric motor and a battery, the battery being electrically coupled to the motor, the motor being disposed in a power flow path between the engine and a power input element of the transmission as driving power is delivered to a transmission power output member, and an electronic controller responsive to power operating variables for controlling actuating pressure for the friction elements by releasing actuating pressure for an off-going friction element in synchronism with increasing actuating pressure for an oncoming friction element during a ratio change, the method comprising the steps of:

commanding a torque level for the motor before the start of a shift;

commanding an initial high pressure for a pressure actuator for the oncoming friction element to fill the actuator quickly; and

changing motor torque during a ratio change whereby the effective torque at the transmission power input member is modulated to effect a reduction in torque fluctuations at the power output member;

the torque at the transmission power input member being the algebraic sum of engine torque and motor torque.

23. (original) A control system for controlling ratio changes in a multiple-ratio transmission in a hybrid electric vehicle powertrain, the transmission having selectively-engageable, pressure-actuated torque establishing friction elements for effecting powertrain upshifts;

the powertrain having an engine, an electric motor and a battery, the motor being disposed in a power flow path between the engine and a power input member of the transmission as driving power is delivered to a power output member;

the control system comprising an electronic controller responsive to powertrain operating variables for controlling actuating pressure for the friction elements;

the control system controller being configured to control actuating pressure for

the friction elements by releasing actuating pressure for an off-going friction element in synchronism with increasing actuating pressure for an oncoming friction element during a power-on upshift;

the motor being disposed in series relationship with respect to the engine and the transmission; and

the control system including means for increasing motor torque during a torque phase and reducing motor torque during an inertia phase of a power-on upshift of the transmission.

24. (withdrawn) A control system for controlling ratio changes in a multiple-ratio transmission of a hybrid electric vehicle powertrain, the transmission having selectively-engageable, pressure-actuated torque establishing friction elements for effecting coasting downshifts;

the powertrain having an engine, an electric motor and a battery, the motor being disposed in a power flow path between the engine and a power input member of the transmission as driving power is delivered to a power output member;

the control system comprising a controller responsive to powertrain operating variables for controlling actuating pressure for the friction elements;

the control system controller being configured to control actuating pressure for the friction elements during a coasting downshift in response to friction element slip speed changes as motor torque is increased during an inertia phase of a coasting downshift.

25. (cancelled).